SERO-PREVALENCES OF SELECTED CATTLE DISEASES IN THE KAFUE FLATS OF ZAMBIA

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ABSTRACT


Sera from five traditionally managed herds grazing in the Kafue flats were tested for antibodies to bovine viral diarrhoea-mucosal disease (BVD-MD), parainfluenza 3 (PI3), infectious bovine rhinotracheitis-infectious pustular vulvovaginitis (IBR-IPV), bovine adenovirus 3 (BAV3) and Bluetongue (BT). The sero-prevalences of the first four diseases were respectively 76.2, 94.4, 42.1 and 87.4%. Five samples (2.3%) gave doubtful reactions for BT. Prevalences of 28.5% for brucellosis, 14% for Rift Valley fever (RVF), 0.9% for Q fever and 11.2% for chlamydiosis were also recorded. Significantly higher values for BVD-MD (p < 0.005), IBR-IPV (p < 0.01) and brucellosis (p < 0.05) were found in animals over 1 year of age. No differences were recorded between herds or between male and female animals.

The high concentration of wild and domestic ruminants grazing together in the flood plains during the dry season may be a major determinant of the high values observed. Traditional farmers, slaughterhouse workers and other people involved in livestock production are particularly at risk of contracting brucellosis and RVF because of the high prevalences in cattle and local habits favourable to their transmission.

Keywords: Brucella, cattle, epidemiology, public health, Rift Valley fever, serology, viruses, Zambia

INTRODUCTION

Cattle play an essential rôle in the agropastoral systems in Zambia. The national herd numbers over 2.5 million cattle while the human population is eight million (FAO-WHO-OIE, 1988). About 80% of Zambia's cattle are in the traditional sector and the development potential of this sector is considerable. However, the offtake from traditionally managed herds is less than 10%, considerably lower than that from commercial farms (Perry et al., 1984).

In neighbouring countries, several viral diseases have been reported as causing loss of production in local herds, including bovine viral diarrhoea-mucosal disease (BVD-MD), parainfluenza 3 (PI3) and infectious bovine rhinotracheitis-infectious
pustular vulvovaginitis (IBR-IPV) (Provost et al., 1967a,b; Taylor and Rampton, 1968; Jetteur et al., 1988; Eyanga et al., 1989). Furthermore, cattle can act as hosts for viruses which are pathogens for other domestic species, such as Bluetongue (BT) (Erasmus, 1975). No information on such diseases in livestock is available from Zambia.

Over 70% of the Zambian population is involved in agricultural activities, including animal husbandry (FAO, 1988). Several zoonoses can be transmitted to personnel working in cattle production. Brucellosis, Rift Valley fever (RFV), Q fever and to a lesser extent bovine chlamydirosis, are of economic importance because they can also affect herd productivity through abortions, stillbirths and reduction in fertility and milk production. RVF may be responsible for severe signs often resulting in death. Human cases have generally followed outbreaks in livestock (Meegan, 1979).

In Zambia, epidemics of this infection in cattle were reported in Central and Southern Provinces during 1974, 1978 and 1985 and seem to have been associated with human deaths (Hussein et al., 1987; Morita, 1988). Serological studies on RVF in cattle gave conflicting results. While Hussein and colleagues (1987) reported over 50% of sera collected in Southern Province to be positive for RVF, Morita (1988) did not find any reactors in animals sampled from Mazabuka, although 11.4% of the tested resident human population had antibodies against the virus.

Bovine brucellosis is particularly frequent in cattle in the Western Province of Zambia, which show about 30% positivity (d'Cruz, 1976). All the cattle there are under traditional management. Prevalences are also high in Southern and Central Provinces, where most of the national herd is found. On the southern bank of the Kafue river, d'Cruz (1976) recorded 14% reactors in Namwala (all these cattle being from the traditional sector), 4.4% in Mazabuka, 6.5% in Monze and 16.7% in Choma. In the last three districts a large proportion of livestock are bred in commercial farms. On the northern bank of the river, i.e. in Central Province, prevalences were 19.7% in Mumbwa (d'Cruz, 1976) and 10% in the Mukulaikwa area (Moorhouse and Snacken, 1983).

Data on Q fever and bovine chlamydirosis in livestock are not available from Zambia. However, these diseases have been reported in both people and cattle from neighbouring countries (Schutte et al., 1976; Gear et al., 1986).

One of the three major traditionally managed cattle populations of Zambia is to be found around the Kafue river plains, in Central and Southern Provinces. It is estimated to be about 700,000 head of cattle, approximately a quarter of the total national herd. These cattle and the Kafue river, a tributary of the Zambesi, are integral parts of a particular traditional farming system in which transhumance allows optimal utilization of the natural resources. A serological investigation into the prevalence of the major viral diseases and zoonotic infections was carried out in some of the traditionally managed herds grazing in the Kafue flats to obtain preliminary information on this particular cattle population and to provide recommendations for field staff involved in disease control.